

REMARKS

The Office Action mailed April 4, 2005 has been carefully considered.

Reconsideration in view of the following remarks is respectfully requested.

Claims 5 and 7 have been amended to further particularly point out and distinctly claim subject matter regarded as the invention and/or to correct typographical errors.

Support for these changes may be found in the specification, figures, and original claims.

No new matter has been added.

Informal Objections

Claims 5-7 were objected to because in Claim 5, line 4, the word “stating” and in Claim 7, the word “polymiade” was misspelled. Claims 5 and 7 have been amended to correct the typographical errors.

With this amendment it is respectfully submitted the claims satisfy the statutory requirements. It is respectfully requested that this objection be withdrawn.

The 35 U.S.C. § 112, Second Paragraph Rejection

Claims 5-7 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter applicant regards as the invention. This objection is respectfully traversed.

The Office Action stated that the “language of claim 5 appears to be grammatically ambiguous so as not to clearly and accurately convey the spatial relationship of the claimed elements. The current phraseology is unclear as to how the open cells of the foam core are filled with a foam. ... The honeycomb core needs to be incorporated in the claims to make the layer arrangement operable.”

Claim 5 has been amended to state: “a composite material comprising a honeycomb core having two faces and open cells opening on each of said faces” as suggested by the Examiner. Accordingly, it is respectfully requested that this rejection be withdrawn.

The First 35 U.S.C. § 103 Rejection

Claims 5-7 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Cundiff (USP 5,569,508) in view of Weinand et al (USP 4,569,884) among which Claim 5 is an independent claim. This rejection is respectfully traversed.

According to the Manual of Patent Examining Procedure (M.P.E.P.),

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure.¹

¹ M.P.E.P. § 2143.

Specifically, the Office Action contends that the elements of the presently claimed invention are disclosed in Cundiff except that Cundiff does not teach the fabric layer interposed between the core and a fiber overlay. The Office Action further contends that “Weinand teaches a composite structure comprising two layers of phenolic prepreg, a fabric layer of polyamide, a honeycomb core, a fabric layer of polyamide and two layers of phenolic prepreg (column 2, lines 59-60, column 3, line 65 et seq.), ... and that the fabric layer interposed between the honeycomb core and the prepreg materials increases the bonding strength between the core and the skin material (Column 1, lines 55-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the fabric layer of polyamide between the core and the perform fiber prior to resin injection motivated by the desire to improve the bonding strength between the core and the skin material.” The Applicants respectfully disagree for the reasons set forth below.

Amended Claim 5 provides for:

A sandwich panel made of a composite material comprising a honeycomb core having two faces and open cells opening on each of said faces, and skins covering both faces of the core, said skins being formed of fibers and resin, a panel in which the cells of the core are closed off by a foam on each of said faces, and in which each of the skins comprises, starting from the core of the panel, a barrier fabric and a fiber overlay, both of which are impregnated with one and the same resin polymerized and stuck onto the core of the panel.

As stated in the specification, a sandwich panel is made of a composite material using the RTM technique which enables one to obtain, in a single phase, a component with a simple, light structure, in which the injected low viscosity resin is directly stuck onto the open cell core. (Specification, page 6, lines 12-29). “In this method, the dry barrier

fabrics combined with pressurization of the mold prevent any penetration of the foam formed by the intumescent films during their polymerization, into the overlays of dry fibers.” (Specification, page 7, lines 12-15). Thus, the barrier fabric is to prevent the intumescent material from entering the overlay of dry fibers when the material is polymerized, before injecting the resin through the overlay.

It should be noted that EP-A-0 722 825 is the European counterpart of Cundiff, as is described in the specification beginning on page 2, line 19. Cundiff teaches “a process of resin transfer molding (RTM) used in combination with honeycomb core material and a heat-expandable, foamable material which is heated and expanded to fill the cells of the honeycomb core material.” (Col, 1, lines 23-27). Thus, Cundiff discloses the use of RTM technique. However, as stated in the Office Action, Cundiff does not teach a fabric layer interposed between the core and a fiber overlay.

Weinand teaches a sandwich panel “comprises a layer (A) of a high strength fibrous material impregnated and/or coated with a curable synthetic resin in the B-stage and a layer (B) of a polyamide polymer or another polymer having similar properties and being compatible with the curable synthetic resin of layer (A), which layer (B) is partially or completely bound to or embedded in layer (A).” (Abstract). Thus, Weinand merely teaches the traditional draping technique to manufacture the sandwich panel. As such, Weinand does not suggest or teach the use of “a barrier fabric and a fiber overlay” as claimed in Claim 5 since the draping technique does not utilize any intumescent materials.

There is no suggestion or motivation, to modify or combine Cundiff with Weinand. Both Cundiff and Weinand teach two different ways of manufacturing a sandwich panel. Cundiff discloses the use of RTM whereas Weinand teaches using the traditional draping technique. Both techniques exclude one another and one looking to improve use the RTM technique would not look to disclosure related to the draping technique. Thus, a person having ordinary skill in the art would have no obvious reason to combine or transfer a characteristic of the RTM technique to the draping technique and vice versa.

The combination of Cundiff with Weinand would not result in the claimed invention. The alleged combination of Cundiff and Weinand would result in a sandwich panel that does not have a fabric layer interposed between the core and a fiber overlay nor a barrier fabric to prevent intumescent material from entering the overlay of dry fibers. Thus, the alleged combination of Cundiff and Weinand would not result in the claimed invention.

The combination of the prior art references do not teach or suggest all the claimed limitations. As stated above, Cundiff does not teach a fabric layer interposed between the core and a fiber overlay and Weinand does not teach “a barrier fabric and a fiber overlay” as claimed in Claim 5. Thus, the combination of Cundiff and Weinand would not teach or suggest all the claimed limitations of Claim 5.

Accordingly, since there is no suggestion or motivation, to modify or combine Cundiff with Weinand, the combination of Cundiff with Weinand would not result in the

claimed invention, and the combination of the prior art references do not teach or suggest all the claimed limitations, the combination of Cundiff and Weinand does not render the claimed invention unpatentable.

The Office Action further admits that Cundiff does not teach the foam only fills the parts of the core that are close to the faces of the core, but does not provide a specific reference where such a limitation is found, instead arguing that one of ordinary skill in the art would have found it obvious to partially fill the honeycomb core with the foam in a manner as recited in the claim motivated by the desire to reduce the weight and the cost of the panel to arrive at the additional claim limitation. Therefore, applicant assumes that the Office Action intended to take official notice of facts under M.P.E.P. 2144.03 that the rationale supporting the obviousness rejection is based on common knowledge in the art or "well-known" prior art. Under M.P.E.P. 2144.03, "[i]f the applicant traverses such an assertion the examiner should cite a reference in support of his or her position."

Applicant hereby traverses the assertion and requests that a reference be cited in support of the position outlined in the Office Action.

As to dependent claims 6-7 the argument set forth above is equally applicable here. The base claims being allowable, the dependent claims must also be allowable.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance. It is respectfully requested that this rejection be withdrawn.

The Second 35 U.S.C. § 103 Rejection

Claims 5-7 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Cundiff (USP 5,569,508) in view of Hartz et al (USP 5,604,010) among which Claim 5 is an independent claim. This rejection is respectfully traversed.

Specifically, the Office Action contends that the elements of the presently claimed invention are disclosed in Cundiff except that Cundiff does not teach the fabric layer interposed between the core and a fiber overlay. The Office Action further contends that “Hartz teaches a composite structure comprising an open cell honeycomb core isolated from the resin by a dry polyamide barrier layer (figure 2, column 1, lines 11-15, column 2, lines 31-35, and column 3, lines 11-15, 47-51). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the fabric layer of polyamide between the core and the perform fiber prior to resin injection motivated by the desire to isolate the open cell honeycomb core from the injection resin.” The Applicants respectfully disagree for the reasons set forth below.

As stated in the Office Action, Hartz discloses a technique whereby resin “flow into the cells of a honeycomb core in sandwich structures is eliminated by using an unsupported film adhesive, a barrier layer, and a scrim supported adhesive layer between the composite laminate and the core.” (Abstract). However, the barrier layer 110 is actually a resin impermeable membrane between the skin 102 and core 106. (Col. 3, lines 47-51). As such, the barrier layer is conceived to eliminate resin flow into the core during the resin impregnation of the fabric sheets forming the skins. One of ordinary

skill in the art utilizing the RTM technique would not look to Hartz nor combine Hartz with Cundiff since the barrier fabric, although necessary to seal against the foam, must be able to be wet by the resin. Thus, since there is no motivation to combine Cundiff with Hartz, the alleged combination would not result in the claimed invention, and the alleged combination would not teach all the claim limitations of Claim 5, the combination of Cundiff and Hartz does not render the claimed invention unpatentable.

As to dependent claims 6-7 the argument set forth above is equally applicable here. The base claims being allowable, the dependent claims must also be allowable.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance. It is respectfully requested that this rejection be withdrawn.

The Third 35 U.S.C. § 103 Rejection

Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Weinand et al (USP 4,569,884) in view of Gorges (USP 4,557,961) among which claim 5 is an independent claims. This rejection is respectfully traversed.

As discussed above, Weinand does not disclose utilizing the RTM technique, but rather the traditional draping technique. Gorges also discloses the use of the traditional draping technique and does not teach or disclose the use of a barrier fabric as claimed in Claim 5. Thus, for all the reasons discussed above, the alleged combination of Weinand and Gorges does not render the claimed invention unpatentable.

As to dependent claims 6-7 the argument set forth above is equally applicable here. The base claims being allowable, the dependent claims must also be allowable.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance. It is respectfully requested that this rejection be withdrawn.

Conclusion

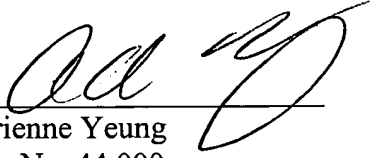
It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,

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